

Preliminary Amendment

Page 2 of 4

Applicant(s): Benson et al.

Serial No. 09/991,211

Filed: November 21, 2001

For: CRYSTALLIZATION AND STRUCTURE DETERMINATION OF *STAPHYLOCOCCUS AUREUS* UDP-N-ACETYLENOLPYRUVYLGLUCOSAMINE REDUCTASE (*S. aureus* MurB)

homologous" to *S. aureus* MurB. Similar structural features can include, for example, regions of amino acid identity, conserved active site or binding site motifs, and similarly arranged secondary structural elements (e.g., α helices and β sheets). Optionally, structural homology is determined by aligning the residues of the two amino acid sequences to optimize the number of identical amino acids along the lengths of their sequences; gaps in either or both sequences are permitted in making the alignment in order to optimize the number of identical amino acids, although the amino acids in each sequence must nonetheless remain in their proper order. Preferably, two amino acid sequences are compared using the Blastp program, version 2.0.9, of the BLAST 2 search algorithm, as described by Tatusova et al., FEMS Microbiol Lett 174, 247-50 (1999), and available at <http://www.ncbi.nlm.nih.gov/gorf/bl2.html>. Preferably, the default values for all BLAST 2 search parameters are used, including matrix = BLOSUM62; open gap penalty = 11, extension gap penalty = 1, gap x_dropoff = 50, expect = 10, wordsize = 3, and filter on. In the comparison of two amino acid sequences using the BLAST search algorithm, structural similarity is referred to as "identity." Preferably, a structurally homologous molecule is a protein that has an amino acid sequence sharing at least 65% identity with a native or recombinant amino acid sequence of *S. aureus* MurB (for example, SEQ ID NO:1). More preferably, a protein that is structurally homologous to *S. aureus* MurB includes at least one contiguous stretch of at least 50 amino acids that shares at least 80% amino acid sequence identity with the analogous portion of the native or recombinant *S. aureus* MurB (for example, SEQ ID NO:1). Methods for generating structural information about the structurally homologous molecule or molecular complex are well-known and include, for example, molecular replacement techniques.

A'

Preliminary Amendment

Page 3 of 4

Applicant(s): Benson et al.

Serial No. 09/991,211

Filed: November 21, 2001

For: CRYSTALLIZATION AND STRUCTURE DETERMINATION OF *STAPHYLOCOCCUS AUREUS* UDP-N-ACETYLENOLPYRUVYLGLUCOSAMINE REDUCTASE (*S. aureus* MurB)

Please replace the paragraph beginning at page 42, line 16-27, with the following rewritten paragraph. Per 37 C.F.R. §1.121, this paragraph is also shown in Appendix A with notations to indicate the changes made.

A2
Specific computer software is available in the art to evaluate compound deformation energy and electrostatic interactions. Examples of programs designed for such uses include: Gaussian 94, revision C (M.J. Frisch, Gaussian, Inc., Pittsburgh, PA 15106); AMBER, version 4.1 (P.A. Kollman, University of California at San Francisco, 94143); QUANTA/CHARMM (Molecular Simulations, Inc., San Diego, CA 92121); Insight II/Discover (Molecular Simulations, Inc., San Diego, CA 92121); DelPhi (Molecular Simulations, Inc., San Diego, CA 92121); and AMSOL (Quantum Chemistry Program Exchange, Indiana University). These programs may be implemented, for instance, using a Silicon Graphics workstation such as an Indigo² with "IMPACT" graphics. Other hardware systems and software packages will be known to those skilled in the art.
